

# **EXHIBIT 5**

**15\_Core\_Regs\_Plus\_Damages**

```

1  cd "[Insert Root Here]\WORKPAPERS\Do"
2  run 01_SetParms
3  set more off
4  clear
5  clear mata
6  clear matrix
7  set maxvar 10000
8  set matsize 5000
9  pause on
10
11 use "$data\Regression Data.dta", clear
12 drop zfs_*
13 drop month
14 gen month = month(event_date)
15 drop year
16 gen year = year(event_date)
17 replace year = year(event_date) if year == .
18 rename compensation fighter_comp
19 drop if fighterid == .
20
21 gen US_fight = 1 if CountryName == "USA"
22 egen US_fighter = max(US_fight), by(fighterid)
23 gen US_fighter_comp = fighter_comp if US_fighter == 1
24
25 gen Gender = 1
26 replace Gender = 0 if gender == "F"
27
28 gen winID = 0
29 replace winID = 1 if FightOutcome == "Win" | result == "win"
30
31 sort fighterid event_date FightID
32 by fighterid: gen Wins = sum(winID)
33 by fighterid: gen Fights = _n
34
35 destring Fight_FightOfTheNight Fight_FighterKOOOfTheNight Fight_FighterSubmissionOfTheNigh
Fight_FighterPerformanceOfTheNig, replace
36 replace Fight_FightOfTheNight = 0 if Fight_FightOfTheNight == .
37 replace Fight_FighterKOOOfTheNight = 0 if Fight_FighterKOOOfTheNight == .
38 replace Fight_FighterSubmissionOfTheNigh = 0 if Fight_FighterSubmissionOfTheNigh == .
39 replace Fight_FighterPerformanceOfTheNig = 0 if Fight_FighterPerformanceOfTheNig == .
40
41 gen ppvid = 0
42 replace ppvid = 1 if ppv != 0 & ppv != .
43
44 gen loadid = 0
45 replace loadid = 1 if loa != 0 & loa != .
46
47 egen countryid = group(CountryName)
48 egen venueid = group(VenueName)
49
50 bysort eventid: gen fightercount = _N
51
52 egen currentrank = rowmin(rank*)
53
54 replace currentrank = 0 if currentrank == .
55 gen hasrank = 0
56 replace hasrank = 1 if currentrank != 0
57
58 label define weightids 1 "Weightclass: Heavyweight (UFC)" 2 "Weightclass: Light Heavyweight
(UFC)" 3 "Weightclass: Middleweight (UFC)" 4 "Weightclass: Welterweight (UFC)" 5
"Weightclass: Lightweight (UFC/WEC)" 6 "Weightclass: Featherweight (UFC/WEC)" 7
"Weightclass: Bantamweight (UFC/WEC)" 8 "Weightclass: Flyweight (UFC/WEC)" 13 "Weightclass:
Catch Weight" 22 "Middleweight - Old UFC" 24 "Weightclass: Women's Featherweight
(Strikeforce)" 25 "Weightclass: Women's Bantamweight (UFC)" 32 "Weightclass: Women's
Strawweight (UFC)"
59 label values WeightClassID weightids
60
61 gen pay_ratio = fighter_comp/event_totalrevenues
62 drop if pay_ratio==0
63 drop if pay_ratio==.

```

```
64
65 sort fighterid zuffa_owned event_date FightID
66 by fighterid zuffa_owned: gen bout_num= _n
67
68 gen trend = event_date/1000
69 gen odds = -1*Fight_FighterOdds/100
70 gen strike_perc = Bout_TotalStrikesLanded/Bout_TotalStrikesAttempted
71 replace strike_perc = 0 if Bout_TotalStrikesAttempted ==0
72 gen sig_strike_perce = Bout_SigStrikesLanded/Bout_SigStrikesAttempted
73 replace sig_strike_perc = 0 if Bout_SigStrikesAttempted ==0
74 gen td_perc = Bout_TakedownsLanded/Bout_TakedownsAttempted
75 replace td_perc = 0 if Bout_TakedownsAttempted==0
76
77 global FM_1 = "Bout_KnockDowns Bout_TotalStrikesLanded Bout_TotalStrikesAttempted
78 strike_perc Bout_SigStrikesLanded Bout_SigStrikesAttempted sig_strike_perc"
79 global FM_2 = "Bout_TakedownsLanded Bout_TakedownsAttempted td_perc
80 Bout_SubmissionsAttempted Bout_OffensivePasses Bout_Sweeps"
81 global FM_data = "$FM_1 $FM_2"
82
83 tab FightMethod, gen(end_type)
84 rename end_type1 Could_Not_Continue
85 rename end_type2 DQ
86 rename end_type3 Dec_Major
87 rename end_type4 Dec_Splt
88 rename end_type5 Dec_Unan
89 rename end_type6 KO_TKO
90 rename end_type7 Overturned
91 rename end_type8 Sub
92 rename end_type9 TKO_DR
93
94 global win_method "Could_Not_Continue DQ Dec_Major Dec_Splt Dec_Unan KO_TKO Overturned Sub
95 TKO_DR"
96
97 replace organization = "STRIKEFORCE" if zuffa_owned==0
98
99 tab organiz, gen(org_ind)
100 rename org_ind1 STRIKEFORCE
101 rename org_ind2 UFC
102 rename org_ind3 WEC
103
104 gen SF_pre = 0
105 replace SF_pre = 1 if STRIKEFORCE==1 & zuffa_owned==0
106
107 global organiz "STRIKEFORCE UFC WEC"
108 global initial_controls "winID hasrank currentrank loadid ppvid Wins Fights"
109 global End_Vars "Fight_EndingRoundNum $win_method"
110 global FOTN "Fight_FightOfTheNight Fight_FighterKOOofTheNight
111 Fight_FighterSubmissionOfTheNigh Fight_FighterPerformanceOfTheNig"
112 global fixed_effects "Gender i.WeightClassID i.Fight_DisplayOrder i.bout_num i.year
113 i.countryid i.venueid $organiz"
114 global varlist "$initial_controls $FOTN $End_Vars $FM_data $fixed_effects trend"
115
116 tab eventid if pay_ratio > 1
117 drop if pay_ratio > 1
118
119 gsort fighterid event_date FightID
120 by fighterid: gen counter = _n
121 tsset fighterid counter
122 drop counter
123
124 gen FS = tfs_rYRL_World_dFMp_R9_t30
125 replace FS = 0 if zuffa_owned == 0
126
127 gen FS_alt1 = tfs_rYRL_World_dFMrA_R9_t30
128 replace FS_alt1 = 0 if zuffa_owned == 0
129
130 gen FS_alt2 = tfs_rYRL_World_dr15m_R9_t30
131 replace FS_alt2 = 0 if zuffa_owned == 0
132
133 gen FS_SF= tfs_rYRL_World_dFMp_R9_t30
```

```
129 replace FS_SF = 0 if zuffa_owned == 1
130
131 gen FS_SF1 = tfs_rYRL_World_dFMrA_R9_t30
132 replace FS_SF1 = 0 if zuffa_owned == 1
133
134 gen FS_SF2 = tfs_rYRL_World_dr15m_R9_t30
135 replace FS_SF2 = 0 if zuffa_owned == 1
136
137 capture drop beta*
138
139 xtreg pay_ratio FS $varlist, fe robust
140 est store column1
141 areg pay_ratio FS $varlist, absorb(fighterid) r
142 local collnewR = round(`e(r2)',.001)
143
144 xtreg pay_ratio FS_alt1 $varlist, fe robust
145 est store column2
146 areg pay_ratio FS_alt1 $varlist, absorb(fighterid) r
147 local col2newR = round(`e(r2)',.001)
148
149 xtreg pay_ratio FS_alt2 $varlist, fe robust
150 est store column3
151 areg pay_ratio FS_alt2 $varlist, absorb(fighterid) r
152 local col3newR = round(`e(r2)',.001)
153
154 xtreg pay_ratio FS FS_SF $varlist, fe robust
155 xtreg pay_ratio FS_alt1 FS_SF1 $varlist, fe robust
156 xtreg pay_ratio FS_alt2 FS_SF2 $varlist, fe robust
157
158 preserve
159 outreg2 [column1 column2 column3] using "$data/Bout Class Main Regression.dta", pval replace
    dta
160 use "$data/Bout Class Main Regression_dta.dta", clear
161 assert v1[551] == "R-squared"
162 replace v2 = "`collnewR'" in 551
163 replace v3 = "`col2newR'" in 551
164 replace v4 = "`col3newR'" in 551
165 export excel using "$output/Regression Output/Bout Class Main Regression.xlsx", sheetreplace
    sheet("Data") firstrow(var)
166 capture rm "$data/Bout Class Main Regression_dta.dta"
167 capture rm "$data/Bout Class Main Regression.dta"
168 restore
169
170 preserve
171 keep if zuffa_owned==1
172 bysort year: egen total_annual_comp = sum(fighter_comp)
173 bysort year fighterid: egen annual_fighter_comp = sum(fighter_comp)
174 gen other_annual_comp = total_annual_comp - annual_fighter_comp
175 bysort eventid: gen counter = _n
176 replace counter = 0 if counter!=1
177 bysort year: egen total_annual_events = sum(counter)
178 drop counter
179 bysort eventid fighterid: gen counter = _n
180 replace counter = 0 if counter!=1
181 bysort year fighterid: egen annual_fighter_events = sum(counter)
182 gen fighter_comp_per_event = annual_fighter_comp/annual_fighter_events
183 gen other_comp_per_event = other_annual_comp/total_annual_events
184 gen total_comp_per_event = total_annual_comp/total_annual_events
185
186 bysort year fighterid: gen unique = _n
187 keep if unique==1
188 tsset fighterid year
189 gen lny = ln(fighter_comp_per_event)
190 gen lny_oth = ln(other_comp_per_event)
191 gen t = year - 2000
192
193 tempfile restart
194 save `restart'
195
196 gen year_1 = year + 1
```

```
197 collapse (mean) other_comp_per_event , by (fighterid year_1)
198 rename year_1 year
199 gen lny_oth_lag = ln(other_comp_per_event)
200 drop other_comp_per_event
201 sort fighterid year
202 tempfile lagcomp1
203 save `lagcomp1'
204
205 use `restart', clear
206
207 gen year_1 = year + 1
208 capture drop unique
209 bysort year_1: gen unique = _n
210 keep if unique==1
211 collapse (mean) total_comp_per_event , by (year_1)
212 rename year_1 year
213 gen lny_tot_lag = ln(total_comp_per_event)
214 drop total_comp_per_event
215 sort year
216 tempfile lagcomp2
217 save `lagcomp2'
218
219 use `restart', clear
220
221 sort fighterid year
222 merge fighterid year using `lagcomp1'
223 drop _merge
224 sort year
225 merge year using `lagcomp2'
226 sort fighterid year
227
228 xtreg lny lny_oth t, fe r
229 est store bccscol1
230 areg lny lny_oth t, absorb(fighterid) r
231 local collnewR = round(`e(r2)',.001)
232
233 replace lny_oth_lag = lny_tot_lag if lny_oth_lag==.
234 xtreg lny lny_oth_lag t, fe r
235 est store bccscol2
236 areg lny lny_oth_lag t, absorb(fighterid) r
237 local col2newR = round(`e(r2)',.001)
238
239 outreg2 [bccscol1 bccscol2] using "$data\BC Comp Structure.dta", pval replace dta
240 use "$data\BC Comp Structure_dta.dta", clear
241 assert v1[15] == "R-squared"
242 replace v2 = "`collnewR'" in 15
243 replace v3 = "`col2newR'" in 15
244 export excel using "$output/Regression Output/Compensation Struture Regressions.xlsx",
sheetreplace sheet("Bout Class") firstrow(var)
245 capture rm "$data\BC Comp Structure_dta.dta"
246 capture rm "$data\BC Comp Structure.dta"
247 restore
248
249 preserve
250 xtreg pay_ratio FS $varlist, fe robust
251 keep if e(sample) == 1
252
253 keep if zuffa_owned == 1
254
255 gen event_totalrevenues_mil = event_totalrevenues /1000000
256 gen fighter_comp_thou = fighter_comp /1000
257
258 local sumlist FS FS_alt1 FS_alt2 fighter_comp_thou event_totalrevenues_mil Gender
Fight_EndingRoundNum $initial_controls $FM_data
259
260 reg pay_ratio `sumlist', robust
261
262 outreg2 using "$data\Bout Summary Statistics.dta", dta sum replace sideways stats(mean sd min
max) ststr(replace mean="$"+mean if varname == "event_totalrevenues_mil" | varname ==
"fighter_comp_thou", replace sd="$"+sd if varname == "event_totalrevenues_mil" | varname ==
```

```

"fighter_comp_thou", replace min="$"+min if varname == "event_totalrevenues_mil" | varname
== "fighter_comp_thou", replace max="$"+max if varname == "event_totalrevenues_mil" |
varname == "fighter_comp_thou") fmt(fc)
263 use "$data\Bout Summary Statistics_dta.dta", clear
264 export excel using "$output/Regression Output/Summary Statistics.xlsx", sheetreplace sheet(
"Bout Class")
265 capture rm "$data\Bout Summary Statistics_dta.dta"
266 capture rm "$data\Bout Summary Statistics.dta"
267 restore
268
269 local sf_pre SF nSF
270 local window_list R
271 local term_list 30
272 local daterange_list 9
273 local denom_list dFMp dFMrA dr15m
274 local weight_list _rYRL_ _
275
276 foreach pre of local sf_pre {
277     foreach window of local window_list {
278         foreach daterange of local daterange_list {
279             foreach term of local term_list {
280                 local colstorage ""
281                 foreach weight of local weight_list {
282                     foreach denom of local denom_list {
283                         foreach butforFS in 0 0.2 0.3 {
284                             preserve
285                             capture drop beta
286                             quietly replace FS = tfs`weight'World_`denom'_
`window'`daterange'_t`term'
287                             quietly replace FS = 0 if zuffa_owned == 0
288
289                             if "`pre'" == "SF" {
290                                 qui xtreg pay_ratio FS $varlist, fe robust
291                             }
292                             else if "`pre'" == "nSF" {
293                                 qui xtreg pay_ratio FS $varlist if zuffa_owned == 1, fe
robust
294                             }
295
296                             matrix b=e(b)
297
298                             scalar beta=b[1,1]
299
300                             drop if year < 2010
301
302                             gen day = day(event_date)
303
304                             capture drop month
305
306                             gen month = month(event_date)
307
308                             drop if year == 2010 & month < 12
309
310                             drop if year == 2010 & month == 12 & day < 16
311
312                             gen beta = beta
313
314                             gen but_for_share = pay_ratio - beta*(FS - `butforFS')
315
316                             gen but_for_comp = but_for_share*event_totalrevenues
317
318                             bysort eventid: gen counter = _n
319
320                             gen event_rev_unique = 0
321
322                             replace event_rev_unique = event_totalrevenues if counter==1
323
324                             drop if zuffa_owned == 0
325
326                             collapse (sum) fighter_comp but_for_comp event_rev_unique, by (

```

```

year)
327
328             gen pay_ratio_actual = fighter_comp/event_rev_unique
329
330             gen pay_ratio_but_for = but_for_comp/event_rev_unique
331
332             keep year pay_ratio_actual pay_ratio_but_for
333
334             order year pay_ratio_actual pay_ratio_but_for
335
336             export excel using "$output/Regression Output/Bout Class
Damages Estimates.xlsx", sheet(
"FS`butforFS`weight`denom`_window`daterange`_t`term`_pre") sheetreplace
337
338             restore
339         }
340     }
341 }
342 }
343 }
344 }
345 }
346
347 foreach FS_type in FS FS_alt1 FS_alt2 {
348     foreach benchmark in 0 .2 {
349         preserve
350         qui xtreg pay_ratio `FS_type' $varlist, fe robust
351         keep if zuffa_owed==1 & e(sample)
352         di "`benchmark'"
353         replace `FS_type' = `benchmark'
354         predict pr_hat
355         gen impacted_ob = 0
356         replace impacted_ob = 1 if pr_hat > pay_ratio
357         egen impacted_fighter_observations = total(impacted_ob), by(fighterid)
358         gen impacted_fighter = impacted_fighter_observations != 0
359         keep fighterid eventid event_date event_totalrevenues fighter_comp pay_ratio pr_hat
impacted*
360         drop impacted_fighter_observations
361         compress
362         gsort impacted_fighter impacted_ob fighterid event_date
363         collapse (max) impacted_fighter, by(fighterid)
364         tab impacted_fighter, missing
365         export excel using "$output/Regression Output/Bout Class Undercompensated Fighter
Comp.xlsx", firstrow(var) sheet("Once `FS_type'=`benchmark'") sheetreplace
366         restore
367
368         preserve
369         qui xtreg pay_ratio `FS_type' $varlist, fe robust
370         keep if zuffa_owed==1 & e(sample)
371         di "`benchmark'"
372         replace `FS_type' = `benchmark'
373         predict pr_hat
374         gen comp_hat = event_totalrevenues*pr_hat
375         collapse (sum) fighter_comp comp_hat, by(fighterid)
376         gen impacted = 0
377         replace impacted = 1 if comp_hat > fighter_comp
378         tab impacted
379         export excel using "$output/Regression Output/Bout Class Undercompensated Fighter
Comp.xlsx", firstrow(var) sheet("Net `FS_type'=`benchmark'") sheetreplace
380         restore
381     }
382 }
383 use "$data\Identity Class Data.dta", clear
384 drop if fighterid == .
385 gen y = identity_payment_total
386 replace y = 0 if y==.
387 drop if y <= 0
388 collapse (sum) y, by(year)
389 replace y = y/1000000
390 export excel using "$output/Regression Output/Identity Class Damages Estimates.xlsx",

```

sheetreplace sheet("Actual Payments") firstrow(var)

391

392